



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,204	09/18/2001	Richard Malcolm Kelso	P21154	6189

7055 7590 03/04/2003

GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

EXAMINER

SORKIN, DAVID L

ART UNIT	PAPER NUMBER
----------	--------------

1723

DATE MAILED: 03/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/857,204

Applicant(s)

KELSO ET AL.

Examiner

David L. Sorkin

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 1723

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is lack of antecedent basis for the term "said corrugated profile", recited in claims 12, 13, 14, 16 and 18. It is unclear if each of claims 12-19 is actually required to have a corrugated profile. Claims 13-15 are additionally unclear in scope because of the phrases "channels are ... substantially equidistant from the bluff body and from the outer wall" and "channels are ... substantially closer...". The examples of the specification generally depict channels which extend from the bluff body to the outer wall. It is unclear what is being claimed.
3. Claims 23 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 23, the express allowance for  $h/L$  (and therefore  $h$ ) to be zero contradicts the requirement of parent claim 22 that the first fluid inlet be spaced from the opposed end. Also, express allowance for  $h/L = 1$  (and therefore  $h=L$ ) contradicts the requirement of claim 1, that the inlet be located at the opposite end from bluff body and be direct toward the bluff body.

Art Unit: 1723

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 20-23 and 25-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Patterson et al. (US 384,068). Regarding claim 1, Patterson ('068) discloses a fluid mixing device including a chamber, a bluff body (H) defining one end of the chamber, a first fluid inlet (D) disposed toward an opposite end of the chamber from said bluff body and arranged to direct fluid toward said bluff body (see Fig. 1), a region substantially surrounding said bluff body including a flow divider (G,C,C') defining at least one second fluid inlet (defined between G and A) and at least one mixed fluid outlet (between H and G). While claim 1 additionally includes some discussion of what the claimed device is intended to do to a fluid intended to be used to the device, "apparatus claims cover what a device *is*, not what a device *does*" (emphasis in original) *Hewlett Packard Co. v. Bausch & Lomb Inc.* 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thilbault*, 164 USPQ 666, 667 (Bd. App. 1969). Regarding claim 20, the flow divider protrudes beyond said bluff body (see Fig. 1). Regarding claim 21, the flow divider extends into said chamber (see Fig. 1). Regarding claim 22, said first fluid inlet is spaced toward said bluff body from said opposite end of the chamber (see Fig. 1).

Art Unit: 1723

Regarding claim 23, device of Patterson ('068) necessarily meets the limitation of claim 23 because the inlet is between the bluff body and the opposite end of the chamber.

Regarding claim 25, said chamber is formed by a generally cup-shaped body with said bluff body disposed at or adjacent an open end (see Fig. 1). Regarding claim 26, said first fluid inlet is centrally disposed in the base of said cup (see Fig. 1). Regarding claim 27, said flow divider extends between the wall of said cup adjacent the open end and said bluff body (see Fig. 1). Regarding claim 28, the flow divider is fixed to the wall of said cup (see Fig. 1). Regarding claim 29, the mixing device is a burner (see title).

Regarding claims 30-32, while, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thilbault*, supra., the reference discusses the first inlet supplying combustible, hydrocarbon fuel (see page 1, lines 15-20) and the second inlets supplying air (see page 1 lines 58-61; Fig. 1).

6. Claims 1-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Ryschkewitsch (US 2,044,511). Regarding claim 1, Ryschewitsch ('511) discloses a fluid mixing device (see especially the embodiment of Figs. 3 and 4) including a chamber, a bluff body (including the center annulus 17) defining one end of the chamber, a first fluid inlet (2) disposed toward an opposite end of the chamber from said bluff body and arranged to direct fluid toward said bluff body, a region substantially surrounding said bluff body including a flow divider (including other annuluses 17 and radial ribs 18) defining at least one second fluid inlet and at least one mixed fluid outlet (see Figs. 3 and 4). While claim 1 additionally includes some discussion of what the

Art Unit: 1723

claimed device is intended to do to a fluid intended to be used to the device, "apparatus claims cover what a device *is*, not what a device *does*" (emphasis in original) *Hewlett Packard Co. v. Bausch & Lomb Inc.* 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thilbault*, 164 USPQ 666, 667 (Bd. App. 1969). Regarding claims 2-7, the bluff body had egress means including a central, circular aperture (see Figs. 3 and 4) and is therefore porous to fluid. Regarding claim 6, the first fluid inlet is directed substantially toward the aperture (see Fig. 3). Regarding claim 8, said flow divider defines a series of flow channels which form said second fluid inlets and said mixed fluid outlets (see Figs. 3 and 4). Regarding claim 9, alternate ones of said flow channels spaced around said bluff body respectively form said second fluid inlets and said mixed fluid outlets (see Figs. 3 and 4). Regarding claim 10, said flow divider has a corrugated profile so as to repeatedly cross said region surrounding the bluff body (see Fig. 4). Regarding claim 11, said chamber includes an outer wall extending substantially around the perimeter of said region of said region surrounding the bluff body (see Fig. 3). Claims 13-15 are too indefinite to accurately address as discussed above regarding section 112; however, the position of the channels is indicated in Fig. 4. Regarding claim 12, the divider alternately contacts the bluff body and the outer wall. Claims 13-15 are too indefinite to accurately address as discussed above regarding section 112; however, the position of the channels is indicated in Fig. 4. Regarding claim 16, the ribs 18 define four pie-shaped or generally triangular channels (see Fig. 4). Regarding claim 17, at least

Art Unit: 1723

alternate channels have substantially the same size (see Fig. 4). Regarding claim, 18, eight flow channel forming second fluid inlets each are alternately interposed with eight flow channels forming mixed fluid outlet (see Fig. 4 which shows 8 outer ring channel, 4 middle ring channels and 4 inner ring channels). Regarding claim 19, the mixing device has eight-fold azimuthal symmetry about a longitudinal axis (see Fig. 4). Regarding claim 20, the flow divider protrudes beyond said bluff body (see Figs. 3 and 4).

Regarding claim 21, the flow divider extends into said chamber (see Fig. 3).

Regarding claim 22, said first fluid inlet is spaced toward said bluff body from said opposite end of the chamber (see Fig. 3). Regarding claim 23, device of Ryschewitsch ('511) necessarily meets the limitation of claim 23 because the inlet is between the bluff body and the opposite end of the chamber. Regarding claim 24,  $h/L$  is about 0.4 (see Fig. 3). Regarding claim 25, said chamber is formed by a generally cup-shaped body with said bluff body disposed at or adjacent an open end (see Fig. 3). Regarding claim 26, said first fluid inlet is centrally disposed in the base of said cup (see Fig. 3).

Regarding claim 27, said flow divider extends between the wall of said cup adjacent the open end and said bluff body (see Figs. 3 and 4). Regarding claim 28, the flow divider is fixed to the wall of said cup (see Figs. 3 and 4). Regarding claim 29, the mixing device is a burner (see title). Regarding claims 30-32, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thilbault*, supra.

Art Unit: 1723

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 384,068). Though numerical values are not discussed by the reference, as depicted in Fig. 1, the h/L ratio is approximately 0.6. It is considered that it would have been obvious to one of ordinary skill in the art to have optimized the spacing of the inlet and/or bluff body, to create a particular air flow. See page 1, lines 65-90 for a discussion of spacings and air flow.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 703-308-1121. The examiner can normally be reached on 8:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.



Art Unit: 1723

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



David Sorkin

February 25, 2003



**CHARLES E. COOLEY**  
**PRIMARY EXAMINER**